DISCUSSION
In consonance with a general belief with regard to a positive impact of physical activity on psychological well-being the review of literature brought out considerable consensus among the scientists on this issue. The findings of the present study lend confirmatory support to this, as in general, the sports-training-programme came out to be significantly instrumental in bringing about positive changes in the participants of the training programme.

It is clearly evident from the results of the study that the influence of the training programme was consistently positive on all the variables. None of the variables registered negative changes following the training programme. These changes became statistically significant at number of places and wherever the scores did not reach statistical significance, the trend of scores was towards positive direction.

It will be appropriate at this point to elucidate as to what was meant by a positive change while analysing the results of the present study.

In the variables of Athletic Skill, Sportsmanspirit, Extraversion, Achievement Motivation and Internal Locus of
Control, the increase in scores following the training programme was termed as positive effect. However, in case of Neuroticism, Psychoticism, Social Desirability (Lie-Scale), Competitive Anxiety and External Locus of Control, the decrease in scores was interpreted as positive influence of the training.

Globally speaking, these changes in the positive direction were widespread in the subjects of the study e.g., male athletes (Table-19), female athletes (Table-20), individual game athletes (Table-21) and team game athletes (Table-22) wherein the significant changes between pre and post training scores emerged in almost all the variables.

The hypothesis that the sports training programme will lead to positive changes in the psychological attributes of athletes was proved by the global findings of the study. These findings of the study were found to be in general agreement with those reported by Layman (1972), Orwin (1973), Nixon and Jewett (1974), Zaichkowsky & Smith (1978), Bucher (1979), Dienstbier et al (1981), Bredemeier (1983), Nideffer (1985), Smith (1986), and Thill (1988).
When the data of various categories of subjects, i.e., male, female, individual game, team game were collectively and separately analysed, number of facts were likely to remain statistically concealed. Hence, to obtain the sport-groupwise pattern of results (Table 3 - 17), it will be appropriate to peruse the summary of this part of findings of the study (Table-18). These results indicated that in most of the sportgroups (11 out of 15) Neuroticism score of the athletes significantly came down after they underwent sports training programme. In other words, the neurotic tendencies present in the athletes were reduced following the sports training programme which implied that they had developed more emotional control and stability in comparison to their pre-training emotional status. The reduction in Competitive Anxiety of 3 out of 15 sportgroups further confirmed the positive influence of training on emotional functioning of the participants of the training programme.

It has already been pointed out by several researchers that the positive psychological benefits that vigorous
physical activity can offer include reduced levels of tension and anxiety, and improvements in such psychological factors as self-confidence, feelings of control, imaginativeness and self sufficiency. The findings of the present study in this respect were found to be in concordance with the ones reported by Kostrubala (1976), Spino (1976), Buffone (1980), Pargman (1980), Dienstbier et al (1981), Harris (1981a, 1981b), Morgan (1981a), Sacks and Sachs (1981), Dienstbier (1984) and Sachs and Buffone (1984).

The hypothesis that the attribute of Competitive Anxiety will respond more positively to training than the Neuroticism was rejected with the above findings of the study.

What accounted for positive changes in the Neuroticism and Competitive Anxiety of athletes? Answer to this question may be sought in the opinions expressed by Pollock et al (1978) and Sharkey (1979). These researchers had pointed out that apart from psychosocial factors operating in behavioural changes of athletes, various physiological factors are found to be closely associated with such changes. They opined that persistence in vigorous physical training leads to improved cardiovascular fitness, reduced body weight, improved muscle tone and increased energy. These changes
enhance the general feeling of well-being and are further reflected in increased confidence, emotional control, motivation and other psychological attributes of athletes.

A number of biochemical changes take place due to rigorous physical training leading to change in mood subsequently bringing positive behavioural changes in athletes. The studies conducted by DeVries (1981) and Peronnett et al (1986) revealed that the production of excess amounts of plasma norepinephrine (NE) following a rigorous physical training exerted a tranquilizing effect, perhaps in response to the pain of exertion which elevated the mood states of the athletes. This heightened state of general psychological well-being experienced by the athletes might be held responsible for other related psychological effects like enhanced self-confidence, self-control, decrease in anxiety etc.

The study of Sachs (1984) also pointed out that the long term changes of positive mood states in athletes took place due to increased feelings of mastery and success and improvement perceived by them as they persisted in the organised physical activity.
As hypothesized, the athletic skill of athletes was also found to be considerably enhanced due to training. This variable accordingly registered significant improvements in eleven out of fifteen sport groups included in the study. The positive changes in this variable due to training were highly expected and were rather inevitable because the entire training programme was mainly focused to enhance the skill level of athletes. The athletic training was basically meant for developing physical capacities of the individuals however, the psychological and social benefits also followed as they were closely interwoven in the entire process of training programme. Harre (1982) rightly said, in this respect, that "in general usage, the term "training" is used to denote different things. In the broad sense, training today is used to mean only organized instruction whose aim is to increase man's physical, psychological, intellectual or mechanical performance rapidly."

The attribute of Sportsmanspirit was also found to be positively influenced by sports-training in nine out of fifteen sport groups. Increase in this attribute indicated that the athletes could develop qualities like sincerity, discipline, fairness, honesty, loyalty, self-sacrifice and
healthy competitive spirit through the sports training programme. These findings were supported by the views of Cratty (1975) who maintained that participation in some of the physical activities enhances moral character, including honesty, consideration for others, trust and similar qualities. Similar views were expressed by Frost (1971), Bredomeier (1983) and Silva and Weinberg (1984). However, Cratty (1989) has recently mentioned that this aspect needs further confirmations as at times it has been observed that the college students participating in physical activities show lesser moral character when compared to the non-athletes.

Like Sportsmanship, the Extraversion was also found to be influenced considerably by the sports-training. In nine out of 15 sports groups, positive changes were registered in this attribute following the training programme. The increases in scores on this variable meant increase in social activity, friendliness, outgoingness, impulsiveness etc. of the athletes. In other words, the training programme helped these athletes develop their sociability. This might have been possible due to frequent opportunities of social interactions with number of athletes participating in the training programme over a considerable period of time of the study. These changes in the behaviour of athletes may be
explained on the basis of the Social Learning Theory in which Bandura (1973) explained "the changes in the behaviour of athletes through reciprocal interaction between the athlete and the specific sports environment." Since the present study was conducted in a specific sports environment these changes may be attributed to this factor.

The findings on the attribute of Extraversion however, were not in agreement with the views expressed by Morgan (1973b) who stated that "physical activity may modify state variables such as anxiety and depression, but not trait variables such as introversion and extraversion." The findings of a followup study conducted by Tattersfield (1975) however, clearly demonstrated increase in Extraversion and decrease in Neuroticism in his subjects. The earlier studies of Carter and Shannon (1940), Sperling (1942), Booth (1953), Werner and Gotheil (1966), Behrman (1967), Brunner (1969), Ikegami (1970), Schendel (1970) and Kane (1970) also attributed such changes in personality to the athletic involvement.

Achievement Motivation and Internal Locus of Control were found to be positively influenced in six sport groups following the sports training programme. It was expected
that as the subjects will develop mastery over their athletic skills with the progression of training, their self-confidence, self-esteem, self-efficacy and internal feeling of competence will also increase enhancing thereby their Achievement Motivation and Internal Locus of Control in most of the sport groups. However, this hypothesis could only partially be proved because not many sport groups showed positive changes in these attributes following the training programme. The studies of Man and Hondlik (1994), Smith (1986), Brown and Harrison (1986) and Doyne et al (1987) also reported such changes in psychological attributes of Achievement Motivation and Internal Locus of Control in one or the other form.

The hypothesis that the attributes of Psychoticism, Social Desirability and External Locus of Control will not show positive changes in many sportgroups, was found to be confirmed by the findings. However, changes in psychoticism in positive direction in five sport groups indicated that the training did have a potential to bring down undue aggression, asocial and schizoid traits, and emotional insensitiveness of the athletes.

The attributes of Social Desirability and External
Locus of Control were found to be significantly influenced in only three sport groups which indicated that the tendency to behave in a socially desirable way could not be influenced in as many sport groups as other psychological attributes. In other words, this particular variable was found to be comparatively resistant to change through sports training. Theoretically speaking the Social Desirability i.e., the tendency to project self-image in a socially desirable way should have been reduced as the athletes go on exploring their actual potentials, their physical and psychological assets and shortcomings, during their hard training. However, this did not come out to be true because the Social Desirability appeared to be more of a static personality trait than the dynamic one in the present study. The same could be applicable to the attribute of External Locus of Control which was also found to be relatively resistant to change in many sport groups. It meant that the sport training could be operative in lessening the Externality of subjects in very few sport groups. It may be noted at this point that the training was found to be more instrumental in bringing positive changes in the Internal Locus of Control when compared to the changes in the External Locus of Control. As opposed to positive changes in three sports groups in case of External Locus of Control, the positive changes took place in six sport groups in case of Internal Locus of Control.
This fact indicated that the sports-training which the athletes had undergone for eight months provided more opportunities to internalize but offered comparatively less chances to reduce the externality in various sport groups.

**Analysis of Individual Game, Team Game, Male and Female Athletes**

(Tables 18 - 26, Figures XI - XX)

The perusal of Table-13 revealed that in general, the athletes of team games showed positive changes in more number of variables when compared to the athletes belonging to individual games. The Football and Hockey players exhibited these changes in nine variables, Volleyball in eight, and Basketball in seven variables out of the ten variables investigated in the study. In the teamgames only Handball was an exception by registering changes in only two variables.

Among the individual games, the Gymnastics group showed positive changes in maximum (six) number of variables followed by Athletics (five), Weightlifting (five), Boxing (five), Wrestling (four) and Swimming (four). The other Individua
game athletes were found to be relatively resistant to such changes in their attributes. These groups included Badminton and Judo where only two variables were found to be positively changed in each group, whereas in Cycling and Table-Tennis only one variable could be positively influenced in each group by sports training.

These findings confirmed the hypothesis that more frequent differences would be observed in teamgame athletes than the individual game athletes.

It may be inferred at this point that the close interpersonal interactions which are the high demands of the teamgames might have been influential in bringing about such changes in the athletes of teamgames. In most of the individual games solitary pursuits are followed by the athletes to achieve goals whereas teams have interactive performance quality which is influenced by the groups' goals and well-defined roles of the team members. The athletes are found to be more motivated when they perform for achieving group goals (Khan & Khan, 1999). However, when they are placed individually for the same task, their performance relatively decreases significantly. In the teams there are more chances of increase in Achievement Motivation, Sportsmanspirit,
Extraversion, and decrease in Competitive Anxiety, Neuroticism, Psychoticism etc. The influence of teamwork on motor performance has been studied by many researchers (Comrey, 1953; Comrey and Deskin, 1954a, 1954b; Wenger and Zeaman, 1956; Weist, Porter and Griselli, 1961; Jones, 1974 and Gill 1979). The teamwork as opposed to individual work was found to be significantly different in these studies.

Because of the direct comparisons with each other's capabilities in the team games the athletes are likely to develop those desirable traits faster which are required to coordinate well in the team for the ultimate aim of good collective performance. In this process their need to achieve may modify; the practice of fairplay, cooperation, sacrifice and trust may lead to more Sportsmanspirit and the frequent social interaction with the teammates may allow increases in the tendencies of Extraversion. Because of the group responsibilities of the ultimate success in performance, the Competitive Anxiety is shared by the teammates, the nervousness gets softened by sympathy and encouragements from each other, and aggression and hostility are kept under control to reach the desirable end results in the teamgame situations. May be because of these reasons the
Neuroticism, Psychoticism and Competitive Anxiety decreased more in teamgames than the individual games.

When the Individual Game Athletes were compared with the Team Game Athletes before the training programme (Table-25), in most of the psychological attributes the scores of Individual Game Athletes showed more positive trends than the Teamgame Athletes. Although the differences between these two groups were not found to be statistically significant. On comparing them after the training programme it was found that these differences attained positive directions in most of the variables in case of Teamgame Athletes (Table-26). Though the differences did not come out to be statistically significant in the post training results also, the positive direction of scores indicated that the training had affected the teamgame athletes more than the individual game athletes. The results of segregated groups presented in the Table-18 had reflected the same fact still more clearly.

Since the collective groups of Individual and Team-game athletes did not differ statistically the hypothesis, i.e., these two groups would respond differently to the training programme may be accepted with some reservations.
It was noted in the findings of the post-training assessment of collective groups of Individual and Teamgame athletes that the Competitive Anxiety of teamgame players significantly came down following the training programme. The views of Oxendine (1970) may be taken into account for explaining this phenomenon. In the process of developing a scale of arousal related to various sports situations, he had pointed out, that the individual game athletes are likely to remain more subject to anxiety experiences when compared to the teamgame athletes.

In teamgames usually the anxiety experiences are shared by the teammates because of the joint responsibilities of athletes, whereas, in the individual games the lone athlete performs before the audience which subjects him to comparatively more anxiety. This might be one of the factors due to which the Individual game athletes did not show as sharp a decrease in their Competitive Anxiety as Teamgame athletes, following the training programme.

Analysis of Male and Female Athletes

No significant differences were found between Male
and Female athletes in the pre-training assessment indicating thereby the similarities existing between these group of subjects in the variables investigated in the study. However, the training brought positive changes in all variables in male athletes. Although the differences could reach statistical significance in the attribute of Internal Locus of Control only. In this variable Male athletes were found to be significantly more internally controlled than the female athletes. These findings were not in agreement with the ones reported by Brown and Harrison (1936). Another evidence of positive changes occurring, through training, more intensely in Male athletes than the Female athletes, was found in the pre-post analysis of results of Male and Female athletes. The findings indicated that the Male athletes registered more intense positive changes consistently with the statistical significance reaching .01 level in all the variables (Table-19) whereas in Female athletes (Table 20) the significance remained at .05 level in most of the variables and no significant changes were registered in the attributes of Psychoticism and Internal Locus of Control.

With these results the hypothesis that the female and male athletes will respond differently to the training programme became acceptable.
Further evidences of the effect of sports training on psychological attributes of athletes were found when the analysis of results of intergroup differences was made by applying the Analysis of Variance (ANCOVA) on the pre and post training data of athletes separately. In the analysis of pre-training assessment (Tables 27-23) the 'F' ratios were found to be significant in the variables of Athletic Skill, Achievement Motivation, Internal Locus of Control and External Locus of Control. However, when the data of post-training assessment (Tables 33-34) were analysed the 'F' ratios for the variables of Athletic Skill, Neuroticism, Psychoticism, Competitive Anxiety, Achievement Motivation, and Internal Locus of Control were found to be significant.

With these findings the pattern of intergroup differences existing before training (Tables 29-32) changed considerably after the training programme (Tables 35-40). When the results of these two levels of study were inspected many facts emerged in support of effect of training on psychological attributes of athletes.
The decrease in Neuroticism, Psychoticism and Competitive Anxiety following the training programme brought many intergroup differences to the surface in which more shifts in the pattern of intergroup differences were evidenced in the teamgames than the individual games.

The hypothesis that the pattern of intergroup differences existing in the psychological attributes at the initial assessment will change at the final assessment was proved by the findings of the study.

In nutshell, the global findings of the present study demonstrated changes in the positive direction in almost all the variables following the training programme. More variables were influenced in teamgames than the individual games and male athletes were found to be more influenced by training than the female athletes. The variables of Skill, Neuroticism, Sportsmanspirit, Extraversion, Competitive Anxiety were found to be positively influenced in more number of sport groups when compared to the attributes of Achievement Motivation, Internal Locus of Control, Psychoticism, Social Desirability and External Locus of Control. It implied that the positive influence of training depended on nature of sport group as well as the type of variable.
Number of causative explanations of these changes could be inferred earlier in the discussion of these findings. Some explanations were also provided by Rotter et al (1972). They stated that the individuals regulate their behaviour according to the situation and as the characteristics of the situation change behavioural expectancies are also modified. It may, therefore, be argued at this point that the change in behaviour of athletes of the present study took place over a period of time because they consciously tried to develop those psychological competencies which were required to be successful in various sports situations. The possibilities of these changes remain more in sport settings because the athletes have to use their mind and body more rigorously to attain success in the highly rule-bound and organized situations of sports.

In fact the changes which took place in the attributes of athletes after undergoing the sports training programme in the present study could not be attributed to a single factor because there are a number of psychological, social, physiological and biochemical factors which might have come into play for leading to positive changes in the behaviour of athletes. Hence, it was a complex of factors which seemed to be operating in the entire process of training. Because
of these complexities the studies in this area of enquiry have, with the passage of time, taken a new turn from exploring the psycho-philosophical basis of these changes to the neurochemical basis. Finding this area of research important, the 1939 Seoul Olympic Scientific Congress included a special seminar on the "long term effect of participation in physical activity" in which various psycho-physiological and biochemical changes associated with long-term involvement in physical activity were discussed at length (Astrand, 1993).

After going through the findings of the present study and its possible explanations, it may be stated at this point that the participation in physical activities has a great potential of modifying the behaviour of athletic participants in the positive directions. The sports training in this way has a valuable role to play in building a psychologically and physically healthy society. While describing the aim of sports training, Matveyev (1981) rightly said that ".....there must always be a more essential aim on the way consisting of the development of the spiritual and physical abilities of an athlete through the achievement of high sporting results as factors for the harmonious moulding of personality and upbringing in the
interest of society. Only on these conditions sport (sports training, in particular) retains its social and pedagogical significance."

Analysis of Intercorrelations

In the analysis of Intercorrelations existing between the Athletic Skill and other variables included in the study (Tables 41 - 43) the Skill was found to be positively correlated with Extraversion and Achievement Motivation and negatively correlated with the Neuroticism and Psychoticism. It implied that with the decrease or increase in the Skill the Extraversion also decreased or increased. The same applied to the attribute of Achievement Motivation. But in the case of Neuroticism, the increase in this attribute decreased the level of Skill and when Skill increased the Neuroticism was decreased. The same type of relationship was found to be existing between Psychoticism and Skill. These findings have important implications in the training of the athletes trying to master various athletic skills for achieving high goals in the field of sports. If the athletes remain socially active (Extravert) they have fair chances of improving their skill. Likewise, if they are properly motivated, there will be more increase in their skill acquisitions.
Hence, the trainers should try to develop these attributes in athletes for improving the level of Skill. However, they should be aware that Neurotic and Psychotic tendencies present in the athletes may interfere considerably in the enhancement of athletic performance.

It was hypothesized that the Athletic Skill will have positive relationship with Extraversion, Achievement Motivation and Internal Locus of Control but negative relationship will be found between Skill and Neuroticism, Psychoticism, Competitive Anxiety, Social Desirability and External Locus of Control and there will be no correlation between Skill and Sportsmanspirit. Taking into consideration the findings of the present study some part of the above hypothesis has been accepted and the rest is rejected.

When the test scores obtained by the subjects of the study were compared with the norms available for these tests it was found that these subjects marginally differed from the test norms (Table-49) whereas it was expected that they (being well-defined sports-subjects) will differ largely from the test norms especially in the variables of Extraversion, Neuroticism, Psychoticism and Social Desirability because these scales were standardized on general population.
With these findings this hypothesis was rejected because the differences were not found to be large at many places. When the EPQ data of the present study are compared with the latest Indian norms developed by Mohan, Eysenck & Eysenck (1987), the subjects of the study appeared to be closer to the army personnel in their personalities.

These findings generated by the data of the present study may be of help in preparing the psychological profiles of Indian athletes at the later stages when a large amount of data is added to the present one. These profiles will help the trainers in understanding the personality of their athletes which will make it possible to design the suitable training programmes according to the psychological makeup of athletes.

**Limitations and Suggestions**

On the whole, the results of the present study have confirmed that sports training, over a period of time, brings positive modifications in the psychological attributes of athletes however, some studies are not in agreement with this fact (Werner and Gotheil, 1966; Kane, 1968; Rushall, 1963; Kleiber and Roberts, 1981).
A single group pre-post design was used in the study, wherein the subjects themselves acted as their control. It will be better to repeat this study by taking a separate control group which does not undergo special sports training and is assessed at the pre- and post levels. For example, the people taking part regularly in recreational sport activities may be tested over a period of time to find out whether their casual participation leads to any changes in their psychological attributes. Likewise, the subjects from the general physical education programmes and non-athletes can also be taken for this kind of study. This type of investigation will help in drawing more dependable conclusions because in the present study the possibility of incidental changes taking place in the attributes of athletes could not be ruled out.

Another limitation of the study was the small number of athletes available in some sport disciplines like Badminton, Cycling, Judo, and Table-Tennis. It is suggested to repeat the study on larger population for arriving at more firm conclusions. The sport disciplinewise breakup of female athletes could not be made as they were meagerly
distributed in various sport groups. It is advisable to have a large population of female athletes so that they can be investigated accordingly.

In the present study only some variables were investigated however, it will be better if more variables are added for this kind of explorations in the future studies. These variables may include the cognitive aspects i.e., perceptual accuracy, concentration, decision making, anticipation etc. The attributes like determination and willpower, dominance, mental toughness, self-esteem are also worth investigating.

The present study investigated the effect of training on psychological attributes taking place over a period of only eight months however, it will be worth taking a longer duration for exploring such effects. Furthermore, a long duration will allow, to assess the subjects at different intervals to demonstrate gradual changes taking place due to the long term athletic exposure.

It is highly recommended that after the subjects are
out of the training programme their followup should be taken up to ensure whether the changes registered due to training remain stable or they tend to go back to their original levels.

In the light of the aforementioned limitations of the present study the following conclusions may be drawn from the findings:

CONCLUSIONS

1. The sports training in general, had positive effects on the psychological attributes of athletes.

2. In more than 50 per cent of the sport disciplines included in the study the attributes of Skill, Extraversion, Neuroticism, Competitive Anxiety and Sportsman spirit registered changes in the positive direction.

3. The positive changes in Achievement Motivation and Internal Locus of Control took place in 40 per cent of the sport disciplines.

4. The changes in the attributes of Psychoticism, Social Desirability and External Locus of Control were found
in only few sports disciplines i.e., Psychoticism in 33 per cent sports disciplines and Social Desirability and External Locus of Control in only 20 percent of the sport disciplines.

5. The athletes belonging to teamgames registered positive changes in more number of variables when compared to the individual game athletes.

6. The male athletes registered more intense changes in their attributes than the female athletes.

7. The pattern of intergroup differences in attributes changed considerably following the training programme.

8. The Athletic Skill was found to be positively correlated with Extraversion and Achievement Motivation and negatively correlated with Neuroticism and Psychoticism.

9. The scores of the subjects did not differ largely from the test norms in most of the variables however, marginal differences were evident in the findings of the study.
To sum up, the present study was just a modest attempt to explore the influence of sports training on some of the psychological attributes of Indian athletes. This study does not claim to be the only study of its kind conducted in India yet it had incorporated many special features which were lacking in the earlier attempts made in this direction in India.

The conclusions of this study have important implications for the upcoming athletes as well as those taking part in athletic activities for the recreational purposes. Since the negative traits like Neuroticism, Psychoticism, Anxiety etc. can be brought down significantly by participation in physical activities, these activities hold a therapeutic promise in the treatment of number of psychological disturbances. They may be tried by psychiatrists and clinical psychologists as therapeutic adjuncts in their professional practices.

It could be concluded that the present study though fairly new in its approach has been a modest attempt demonstrating a positive impact of planned sports training on psychological attributes. Once again it emphasizes the
'mind-body' unity in a functional manner.

This investigation could be used as a working model for explaining and expanding sports training to even those who intend psychological embellishment on the one side and as an academic trial of a 'psycho-physical' paradigm on the other, with greater possibilities of improvement and utilization in future.